tically all nucleus. The corpuscles on the other hand have lost their nuclei wholly. Between these extremes we have various stages of chromatin reduction in the development of the specialized Metazoan tissues. The maturation divisions in ova and sperm, the bodily extrusion of chromatin observed on the part of blood-cells, etc., he regards as illustrations of the process.

THE RESERVE OF FOOD IN TREES

Preston and Phillips (Forest Quart., 1911) agree with the common view that starch is the principal form in which reserve food is stored in trees. They doubt that cellulose is able to act at all as a reserve material. The maximum contained reserve for deciduous trees occurs about the time the leaves fall, and during the next few weeks there is a decided reduction in its amount. The sugar content in trees remains pretty constant except for an increase in spring during the unfolding of the buds.

ALTERNATION OF GENERATION IN FLORIDEÆ

Lewis (Bot. Gaz., Mch., 1912), by artificial plantings of tetraspores and carpospores of *Polysiphonia* and some other genera of red algae gets experimental results supporting the general conclusion that tetraspores produce only the sexual plants and carpospores only the tetrasporic plants. In no instance was an exception found to the rule, although a considerable number of plantings developed to maturity. Tetraspores from a given individual produced male and female plants in approximately equal numbers. It is also concluded that no greater growth vigor comes to the carpospores over the tetraspores because of the double number of chromosomes contained by them.

RELATION OF THE PROTOPLASM OF ADJACENT PROTOPLASTS

Thoday (Ann. Bot., 1911) undertakes to throw light on the relation that exists between protoplasms of contiguous cells, by an examination of the relation between the parasite, *Cuscuta,* and its host. She finds that there is no direct protoplasmic connection between the cells of *Cuscuta* and the host, but that the phloem cells of the parasite haustoria apply themselves to the sieve plates of the phloem of

the host. The wall of the former breaks down over the area of contact, but the protoplasmic threads do not penetrate and become continuous with the protoplasm of the seive cells. The parasite seems to receive the food passively through the action of internal pressure in the cells of the host.

The author suggests that this study appears to lend support to Gardiner's view that connecting threads of protoplasm, as found between the cells of some plants, represent original connections between genetically connected cells due to lack of complete dividing walls along the plane of division, and are not secondary connections of the protoplasts effected by the cell walls being perforated by advancing protoplasmic fibrils.

A NEW FORM OF PARASITISM

Jensen (Ann. Jard. Bot. Buitenzorg, 1910) reports the study of several species of dipterous larvae, belonging to not less than three different families, that are able to live in the mixture found in pitchers of *Nepenthes*. They are able to resist the action of the ferments secreted by the *Nepenthes,* which digests the other contained organisms. He found that closely related larvae taken from nearby waters were wholly unable to withstand the action of the fluid. These conditions seem quite analogous to those encountered and overcome by some intestinal parasites of animals.

BACTERIA IN RIVER WATER

Reiss (Verh. Phys. Med. Gessell. Wurtzburg, 1911) reports the finding of as many as sixty-two species of bacteria in samples of river water taken from the Main, near Wurtzburg. On cultivation, a number of species showed resemblances to known pathogenic types, but seemed to have lost their virulence. This is certainly a remarkable showing of bacteria.

CONDITION OF CONTINUOUS DIVISION IN PARAMECIUM

Woodruff (Biol. Bull., Dec., 1911) believes that most, if not all, normal individuals of Paramecium, under suitable environmental conditions, possess unlimited power of reproduction without conjugation or artificial stimulation; and that the discrepant results of dif-